

Contribution ID: 175 Type: Poster

EXO-200 detector performance and lessons for nEXO

The EXO-200 detector, a 175 kg single phase liquid xenon time projection chamber, is the most sensitive experiment in the Xe-136 neutrino-less double beta decay search. Its success bodes well for the future multiton scale next phase, nEXO. The abilities to achieve energy resolution of $\sigma/E=1.53\%$ at the Q-value of 2458 keV and reduce α and γ -ray backgrounds make it feasible to improve sensitivity via scaling up in mass. EXO-200 also demonstrates technological achievements such as in situ xenon purification and the construction of a TPC from only low background materials, while experiencing challenges such as high voltage breakdown in liquid xenon. We describe the EXO-200 detector performance over three years of running and highlight the lessons applied to nEXO design.

Primary authors: Ms SMITH, Erica (Drexel University); Mr JEWELL, Michael (Drexel University); Prof. DOLINSKI, Michelle (Drexel University); Ms LIN, Yi-Hsuan (Drexel University); Dr YEN, Yung-Ruey Yen (Drexel University)

Presenters: Ms SMITH, Erica (Drexel University); Prof. DOLINSKI, Michelle (Drexel University); Ms LIN, Yi-Hsuan (Drexel University); Dr YEN, Yung-Ruey Yen (Drexel University)

Track Classification: Neutrinoless Double Beta Decay